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descriptions.——J. C. Arthur described a minute fresh-water seaweed (*Rivularia fluitans*) abounding in the lakes of Minnesota, and which has this year again apparently been poisonous to cattle. ——J. F. James argued that from structural and other characters the Compositæ should stand at the head of the vegetable kingdom.——At the meeting of the Society for the Promotion of Agricultural Science at Minneapolis, August 14th, Dr. W. G. Farlow presented a complete revision of the North American Peronosporeæ. The number of species has been greatly increased since his last revision in the Bulletin of the Bussey Institution in 1876.

ENTOMOLOGY.[1]

ENTOMOLOGY AT MINNEAPOLIS.—Owing to the fact that there were no active members and but two honorary members of the Cambridge Entomological Club present at Minneapolis on the 14th of August, the meeting of said club announced for that day at 2 P. M. did not take place. On the next day, however, in obedience to a call made by Mr. J. A. Lintner, who was instructed at Montreal to fix a day of meeting, the entomologists of the association assembled and effected a temporary organization, before which Professor S. A. Forbes read a letter from Mr. Lintner expressing regrets at his inability to be present. The prevailing feeling at Montreal was explained by Mr. C. V. Riley, on whose motion the old Entomological Club of the A. A. A. S. was revived by the election of Dr. D. S. Kellicott, of Buffalo, N. Y., as president, Professor Herbert Osborn, of Ames, Ia., as vice-president, and Prof. O. S. Westcott, of Maywood, Ills., as secretary.

The old rules were adopted with the modification that instead of any member of the association interested in entomology being *ipse facto* a member of the club, registration is made a requisite of membership.

Three meetings were held, and the attendance comprised among others the following persons specially interested in entomology: D. S. Kellicott, P. R. Hoy, O. S. Westcott, Jenny Hoy, S. A. Forbes, G. H. Perkins, Mary E. Murtfeldt, E. S. Morse, Julius Pohlman, E. W. Claypole, Lillie J. Martin, Herbert Osborn, R. J. Mendenhall, Thos. S. Roberts, Wm. Saunders, C. E. Bessey, E. H. Canfield, Jno. Hicks, C. L. Herrick and C. V. Riley.

We give a brief account of the subjects presented and discussed, and shall in due time give abstracts of the papers of an entomological character read in Section F of the association.

Life-histories of Butterflies.—Mr. Wm. H. Edwards, of Coalburgh, W. Va., sent in the following recent experience in rearing Rhopalocera:

"I have *Colias barbara* larva past fourth molt, .65 in. long.

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[1] This department is edited by PROF. C. V. RILEY, Washington, D. C., to whom communications, books for notice, etc., should be sent.

"I have had from the egg Rutulus and Zolicaon. I have found that Rutulus is constantly distinguishable from Turnus, after first larval stage at least; that Zolicaon is closer to Asterias than to Machaon. I will figure the larvæ of both species in full and the imagos of Rutulus. I have had from egg and got drawings of *Colias amorphæ*, and I am not at all certain that it is *not a distinct* species from *C. eurydice.*

"I have had all stages of *M. chalcedon*, and had Phæton colonizing on same plant, so that I could compare the habits of the two species.

"I have had *Lycæna melissa* from egg to chrysalis, and the larva in last stages has the same organs on tenth and eleventh segments that pseudargiolus larva has, attracts ants in the same way, and gives them fluid to eat. And finally I have over 100 eggs of Parnassius, either *smintheus* or something close to it, perhaps *intermedius*, from West Montana.

"That is what I have done so far. I have had eggs of *Argynnis coronis* hatch (or perhaps it was *callippe*) but the larvæ died.

"As to butterflies this year, I have never seen them scarcer."

Notes on Pædisca scudderiana.—Mr. Riley exhibited plants of Solidago containing the larvæ of this species, and made some remarks on its habits which went to reconcile the published conclusions and differences between himself and Dr. Kellicott, and to show that while the insect is commonly a gall maker, it was also, exceptionally, an inquiline. The specimens showed that the habits of the insect were variable, and that the larva was either a leaf-crumpler, living in a bunch of curled terminal leaves held together by a silken gallery, a stem-borer, without causing any swelling, or the maker of a more or less perfect gall. He had also found it as an inquiline in the gall of *Gelechia gallæsolidaginis*, the gall of which was always distinguishable from that of the Pædisca; among other things by the burrow of the larva always being traceable from the blighted tip of the plant, whereas the Pædisca larva lived at first in the tip, and when making a gall always left the tip and bored in at the side. Dr. Kellicott's observations were accurate so far as they went, but did not take into account the variation in habit. Mr. Riley had watched these larval habits during the present year from the time of hatching, and had concluded that the insect combined, in varying degree, the four characteristics of gall-maker, leaf-crumpler, stem-borer and inquiline. The larva living in the crumpled leaves later in the season had not been reared to the imago, but he had made comparisons of the young larvæ and found that they were exactly alike, but they showed considerable modification as they developed, especially after the last molt. Several other microlepidopterous larvæ bored in the stems and lived among the leaves of Solidago; while another species, yet unbred, made a gall similar to that of Pædisca; but all the other larvæ known to him were easily distinguished from Pædisca.

D. S. Kellicott said that he felt sure that his observations as reported in the paper referred to were correct, and he was glad to know that both his own conclusions and those of Dr. Riley could be thus harmonized. It would seem he had not carried his observations far enough to discover that all the larvæ of *scudderiana* fed at first in the terminal leaves. Late in the fall he had often taken from the terminal leaves the mature larva referred to by Dr. Riley, but had so far failed to obtain the imago. He had some doubts about its being identical with *P. scudderiana.*

A Myrmicophilous Lepidopteron.—Mr. Riley also stated the life-habits of *Helia americalis*, which he finds in the larva state to feed in the nests of *Formica rufa.* So far as he knew this was the first Lepidopterous insect known to develop in ants' nests.—[*To be continued.*]

ENEMIES OF THE EGG-PLANT.—As an evidence that the appearance of *Cassida texana* and *Doryphora juncta* on the egg-plant, as referred to on p. 678 of last year's NATURALIST, was not accidental or temporary, we quote here a portion of a letter from Dr. A. Oemler, of Wilmington island, dated June 11th: "I have to report the appearance of *Cassida texana* on egg-plant more numerously and earlier than last season, having noticed it some weeks ago. The *D. juncta* is also plentiful. On two plants I found twenty-three larvæ on each, and nineteen on another, and neither were large plants. Besides the twenty-three larvæ I found on one of the plants four clusters of unhatched eggs, six perfect insects of the *texana* and thirteen larvæ."

THE PERIODICAL CICADA IN SOUTHEASTERN MASSACHUSETTS.—While driving across "the plains" of the central part of Martha's Vineyard, Mass., in the last few days of June of this year, I observed large numbers of the periodical Cicada (*Cicada septemdecim*). The scrub-oaks, which here cover the whole ground, were literally alive with them. Specimens of twigs containing eggs were secured, as also of the insects themselves and their abandoned pupa skins.

According to the article in the *American Entomologist* (Vol. I, pp. 63 to 72) these should belong to what is there called Brood XIV. That is, however, there recorded as appearing in Western New York, Western Pennsylvania and Eastern Ohio. Of Brood XV, which occurs in Virginia and North Carolina, the statement is made that "Dr. Harris records their appearance at Martha's Vineyard, Mass., in 1833. We have made some inquiry, but have not yet learned that they were there either in 1850 or in 1867. Hence we should rather infer that Dr. Harris's informant must have been mistaken." [*l. c.* p. 71.]

The insects were confined to a narrow belt not exceeding half or three-quarters of a mile in width and of unknown length, and posssibly this may account for the fact that the inquiries referred to above failed to elicit any knowledge of a previous visitation.

Supposing Dr. Harris to be right, we have here a slight acceleration in development, due probably to the well-known milder climate of the island.—*C. E. Bessey.*

[Professor Bessey is evidently correct in considering the limited appearance in Martha's Vineyard as a precursor to the Septendecim Brood XXI of our first Missouri Entomological Report, according to which it will appear next year in North Carolina and Central Virginia as well as in Martha's Vineyard. We have recently received from Loudon county, Virginia, through the National Museum, specimens which are also, in all probability, accelerated individuals of the same brood.]

HABITS OF MURMIDIUS.—The original home of this little brownish-red beetle is unknown, as is the case with most insects living in stored produce and which are now carried by commerce all over the globe. It occurs in old rice or straw, but does not appear to be very common in this country. We lately had an opportunity of observing it in vast numbers in old rice which had been kept in ill-closed bottles at the U. S. National Museum and which was received from South America. This rice swarmed with a large number of insects which are usually found in such places: among these were *Tenebrio molitor* and *T. obscurus, Calandra oryzæ, Ephestia zeæ, Silvanus surinamensis, Lepisma domestica, Trogosita mauritania.* Owing to its small size the Murmidius was less conspicuous than the above named species. Whether or not it was injurious to the rice could not be definitely ascertained, but the probabilities are that it fed only on the débris left by the working of the other species. It certainly does not bore in the kernels. Its larva was found hidden under the very fine débris and never attached to the kernels. It is of sluggish movements and very large when compared with the size of the imago. The most interesting point in the earlier history of this species is its pupa, which is remarkable from being enveloped in a cocoon spun by the larva. Not many cocoon-spinning Coleopterous larvæ are known thus far, but these occur among widely different families, viz., Gyrinidæ (no doubt all genera), Chrysomelidæ (Donacia and probably allied genera), Curculionidæ (Phytonomus and allied genera, Prionomerus). The small family Murmidiidæ must now be added to these. Whether or not the second representative of the family, viz., the genus Mychocerus, has the same habit as Murmidius remains uncertain. It occurs very rarely under fresh bark of deciduous trees in the Southeastern States. The cocoon of Murmidius is of dirty white silk and bears a certain resemblance in shape to that of the typical Noctuid egg, *i. e.*, having a broad circular base, the sides and top being rounded: this resemblance is further enhanced by the presence in the Murmidius cocoon of transverse and longitudinal ridges, though they are by no means so regular as in the Noctuid eggs.—*C. V. Riley.*

OBITUARY.—Entomologists will learn with deep regret of the death of V. T. Chambers, at Covington, Ky., on August 7th—his fifty-second birth-day. He was a lawyer by profession, and yet found time to do a great deal of entomological work. His writings have been confined almost exclusively to the Tineidæ, and all of his earlier papers were descriptive in their character and were published mainly in the *Canadian Entomologist.*

His later writings, published in *Psyche* and the *Cincinnati Quarterly Journal of Science*, dealt largely with the larval structure of the Tineidæ. In addition to these various articles, he published in Bulletin I, Vol. IV of the U. S. Geological and Geographical Survey, a list of "Tineina and their food-plants" and an "Index to the described Tineina of the United States." His collection was some years ago deposited with the Cambridge Museum of Comparative Zoölogy, and duplicates of many of his types are in the possession of private individuals.

Just as the proof of the above is being read, we are pained to learn that Mr. Townend Glover, for many years Government entomologist, died at the house of his adopted daughter in Baltimore, September 8th, from an attack of apoplexy. Mr. Glover published his first report under the Government in the year 1854, and from that year until 1878 nearly every volume of the Agricultural Reports contains something from his pen. He was born of English parents on the ocean, we believe, somewhere near Rio Janeiro, in 1813, so that at the time of his death he had entered upon his 71st year. He received his education in England, but came to this country when a very young man.

ENTOMOLOGICAL NOTES.—Mr. H. T. Stainton gives an interesting biographical sketch of Professor Zeller in the June number of the *Entomologists' Monthly Magazine*, and we are glad to learn that Zeller's collection has been purchased by Lord Walsingham. ——F. Brauer, according to a notice in the *Wiener Ent. Zeit.*, II, p. 155, records the larva of *Anthrax flava* as infesting Noctuid larvæ, and that of a Tabanus and of an Asilus as eating into a Coleopterous larva.——Jos. Mik (*ibid*, p. 156) confirms by observations of his own our conclusions as to the sarcophagous and non-parasitic nature of *Cyrtoneura stabulans.*——E. H. Jones describes and figures an abnormal larva of *Melanippe montanata* which possessed the antennæ and thoracic legs of the imago (*The Entomologist*, XVI, p. 121, June 1, 1883).——Mr. Newton B. Pierce, of Ludington, Mich., gave us a call recently on his way from Cambridge, Mass., where he has been studying Myrmelionidæ with Dr. Hagen. Mr. Pierce has already finished some plates of larvæ, and has made some interesting biographical discoveries. ——We learn from *Nature* that the Swedish Government has made provision for an entomologist, whose duty it will be to advise farmers as to the best means of destroying injurious insects.

——Dr. Hagen, of Cambridge, has had occasion to study somewhat Grote's nomenclature. He wrote us recently of *Aletia argillacea* Hübn., that he does not consider Hübner's few words a description; that the figure is different from *xylina* Say, and that the rejection of this last as having any priority in *argillacea* is entirely out of the question. We sometime since came to the same conclusion.——Professor Forbes, State entomologist of Illinois, recently sent out a circular statement of a new Dipterous wheat insect which he termed "the wheat-bulb worm," on account of its being found in the larval state at the base of the stem just above the root. From the figure and description we concluded that it would prove to be some small Muscid, but we did not expect it to prove to be the *Meromyza americana* Fitch, which more generally affects the base of the terminal joint. We learn from him (June 20), however, that such it has proved to be.——Part I of Vol. XXII of the Proceedings of the Boston Society of Natural History (May, 1882–November, 1882) contains the following entomological papers: Older fossil insects west of the Mississippi, by Samuel H. Scudder; Remarks on Scolopendrella and Polyxenus, by Samuel H. Scudder; Description of two interesting houses made by native Caddis-fly larvæ, by Cora H. Clarke; *Papilio machaon*, by H. A. Hagen.——Professor Planchon gives evidence of the permanent introduction and multiplication of our snowy tree-cricket (*Œcanthus niveus*) into the south of France (La Vigne Américaine, Vol. VII, April, 1883, p. 160).——Joseph Nusbaum gives grounds, from embryological studies, for the belief that the chorda dorsalis of vertebrates has its homologue in Arthropods in what Burger called the chorda supraspinalis (Zool. Anzeiger, No. 140).——We regret exceedingly to learn from a card received (July 1st) from his son, Mr. Geo. I. Bailey, that Dr. J. G. Bailey, of Albany, N. Y., died that day after a protracted illness. Dr. Bailey had long been interested in the Lepidoptera, and had accumulated a valuable collection. He had made a special study of the tree-boring species of the genus Cossus, and was engaged at the time of his death in the preparation of a paper for the Department of Agriculture.——Professor J. A. Lintner, in pursuance of a resolution passed at the meeting of the Ontario Entomological Society last fall at the Montreal meeting, has called a meeting of entomologists at Minneapolis, on the 15th of August. All interested in entomology are invited to attend.

ECONOMIC NOTES.—The lesser migratory locust (*Caloptenus atlanis*) has proved extremely destructive in the Boscawen valley, New Hampshire, the present season.——Professor G. N. French, in the *Prairie Farmer* (June 16, 1883) mentions great injury to strawberries near Carbondale, Ills., by an undetermined Myriopod belonging to Chilopoda. A fuller account is given in *Farm, Herd and Home* for July.——The tarnished plant-bug

(*Capsus oblineatus*) has also proved very destructive to strawberries this year in Illinois.——Mr. Henry Edwards publishes (N. Y. *Evening Telegram*, July 3, 1883) a very instructive account of the work of *Orgyia leucostigma* on the shade trees in the squares and parks of New York city.——The army worm has attracted little attention this year, notwithstanding the spring and early summer were cool and moist. We have heard of it chiefly from Chester county, Pa.——The Hessian-fly has proved so destructive to wheat in Missouri, Kansas, Illinois, Indiana and Ohio, that much of the wheat was plowed up in consequence. Yet we doubt whether those entomologists who do not keep the run of agricultural news have been aware of the fact, or whether any specimens have been added to their cabinets.——Messrs. J. D. Peters and G. N. Milco had 300 acres of *Pyrethrum cinerariæfolium* in cultivation at Stockton, Cal., this year, and are extending the area of what they find to be a most profitable crop.

ZOÖLOGY.

HÆMATOZOA OF FISHES.—P. Mitrophanow gives some account of new monadiform parasites in the blood of fishes, and discusses their relations to the blood corpuscles. He points out that in consequence of their having been looked upon as curiosities, the literature that deals with the presence of foreign organisms in the blood of healthy animals, is in a very fragmentary condition. The author has discovered in the blood of *Cobitis fossilis* and of *Carassius vulgaris* an organism which at first sight appeared to be a Nematode, but which exhibited, on closer examination, no internal differentiation, and some amœboid characters. Of about 30-40 μ. long, it was only 1–1½ μ. broad, and moved with great rapidity; at its anterior end there was a flagellum of considerable length, and the anterior was narrower than the hinder end. When dying, or less active, the organism became much shorter, and an undulating membrane became apparent. The body of the organism, the membrane and the flagellum all exhibited a homogeneous highly refractive protoplasm of great contractile power. Some striking varieties of this form are described. The hæmatozoön found in *Carassius vulgaris* was at first sight similar to that found in *C. fossilis*, and just described, but it differed from it in its somewhat larger size and in the more distinct appearance of its undulating membrane. For the reception of these forms a new genus must be established which may be known as Hæmatomonas, and the two species as *H. cobitis* and *H. carassii*. After giving an exact definition of these forms, the author proceeds to refer to the views of Gaule, and states that he comes to the conclusion that he has here to do with organisms and not with the derivates of anatomical elements, and he agrees with Professor Ray Lankester that we have here Cytozoa. In consequence of the paper of the last-mentioned naturalist, he feels that it would